Data Structures
Homework #1

Due: Oct 14, 2019

This assignment is to practice the Python programming. There are five problems and please finish each problem right after the problem description in the `HW1.ipynb` file that is provided on the i-school *ischool* (`http://www.ischool.ntut.edu.tw/`) platform. More details about each problem are also in the `HW1.ipynb` file.

1. Please calculate the sum of the multiples of 2 or 3 between the numbers 1 and N, including 1 and N.

2. Please print out the multiplication table (you must use the loop method).

3. Please determine if N is a prime number or not. (Prime number: There is no other number to have it divisible except 1 and itself)

4. Please determine if N ($N < 2^{31} - 1$) is a Narcissistic number or not. A Narcissistic number is a number that is the sum of its own digits each raised to the power of the number of digits. For example, the 3-digit decimal number 153 is a narcissistic number because $153 = 1^3 + 5^3 + 3^3$.

5. Given an unsorted sequence S, please output the maximum number of repetitions in this sequence.

Homework Submission

- Please upload the completed `.ipynb` file with the filename as `HW1_studentID.ipynb` to *ischool* platform (`http://www.ischool.ntut.edu.tw/`).
- The **deadline** is the **midnight of October 14**, 2019 and **Late work** is not acceptable.
- Honest Policy: We encourage students to discuss their work with the peer. However, each student should write the program or the problem solutions on her/his own. Those who copy others work will get 0 on the homework grade.